

What Is Claimed:

1. A system comprising:

a remote telemetry device to monitor at least one sensor input, the telemetry device programmable to communicate with a central station upon at least one of an alarm condition and a regular time interval, the alarm condition comprising any measurement of the sensor input that is outside of a user defined measurement range, the telemetry device incorporating a transmitter and a processor that includes non-volatile memory and programming code to control operation of the telemetry device;

10 a central station, responsive to the remote telemetry device, the central station including a central station computer server and software embedded therein to provide connection with a wide area network communications module, a database hosting module hosting a central database, and a notification module to issue alarm notification messages, the wide area network communications module to manage message traffic between a wide area communications network and the central database;

15 a central database to store and organize information communicated by the telemetry device; and

20 a computer network user interface that provides a user with remote access to the information stored at the central database.

25 2. The system of claim 1, further comprising a plurality of telemetry devices in communication with the central station.

3. The system of claim 1, wherein the user interface allows the user to view or export data gathered from the telemetry device.

25 4. The system of claim 1, wherein the user interface allows a user to modify a telemetry device notification method.

5. The system of claim 1, wherein the user interface allows users to remotely request data from the remote telemetry device.

30 6. The system of claim 1, wherein the user interface allows a user to remotely reprogram the remote telemetry device.

7. The system of claim 6, wherein the remote reprogramming is implemented by sending data message to the remote telemetry device where the data message is decoded at the telemetry device to change a parameter of the telemetry device.

5 8. The system of claim 1, wherein the user interface allows the user to change the output of the telemetry device remotely.

9. The system of claim 1, where the notification module automatically issues notifications of alarm events via a communication facility.

10 10. The system of claim 9, wherein the communication facsimile is selected from the group consisting of a numeric pager, an alpha-numeric pager, an electronic mail and a voice message.

11. The system of claim 1, where the user may establish, delete or modify notification methods via the user interface.

15 12. The system of claim 1, wherein the central database is configured to store information about the telemetry device.

20 13. The system of claim 12, wherein the stored information about the telemetry device includes at least one of identification information, data gathered from the remote telemetry device, configuration information, notification methods, alarm information, production data, return materials information, shipping information, billing information, and services charges.

14. The system of claim 1, further comprising a software tool to allow a user to configure at least one channel of the sensor input and to set different alarming conditions on each channel.

25 15. The system of claim 14, wherein the configuration software tool allows a user to configure a reporting frequency for the telemetry device.

16. The system of claim 14, wherein the configuration software tool is used to specify a serial data range to be captured and reported by the telemetry device.

30 17. The system of claim 1 where the sensor input is selected from the group consisting of temperature, pressure, on/off, open/closed, voltage, amperage,

counting, resetting, serial data, sensors that provide digital (contact closure) input, analog input (from -5 to +5V, -50 to +50mV, 4-2mA or any other reasonable range of analog input), serial data, and resistance.

18. The system of claim 1 wherein the communications network
5 employed is a wireless wide area network.

19. The system of claim 1 where the remote telemetry device is battery
powered.

20. The system of claim 1 where the remote telemetry device is
enclosed in a housing, the housing connected to an external solar panel.

10 21. The system of claim 20, wherein the solar panel is suitable to
operate in hazardous locations.

22. The system of claim 14 where the remote telemetry device has a
push button that can be used to prompt a test transmission to the central station, the
test transmission independent of using the configuration software tool.

15 23. The system of claim 1 where the telemetry device includes a visible
indicator to inform a user about transmission strength of the transmitter.

24. The system of claim 1 wherein the telemetry device has a visible
indicator, including light emitting diodes, to inform a user whether a test
transmission to the central station was successfully received by indicating the
20 receipt from the central station of a return confirmation message.

25 25. The system of claim 1 wherein the remote telemetry device uploads
configuration information to a web site in the form of a specially identified data
transmission that the central station uses to populate the central database.

26. The system of claim 1 wherein the remote telemetry device has a
25 capability to receive a message sent by the central station and take a pre-
programmed action in response to decoding the message.

27. The system of claim 26, wherein the pre-programmed action is one
or more of changing a measurement reporting frequency, changing alarm
conditions, changing the clock date and time, or changing a state of an output
30 channel.

28. The system of claim 14 wherein the software configuration tool is used to check radio frequency signal strength of the transmitter on the communications network at the remote site location of the remote telemetry device.

5 29. The system of claim 14 wherein the software configuration tool is used to prompt a test transmission to provide communications between the telemetry device and the central station.

30. The system of claim 14 wherein the software configuration tool is used to prompt the telemetry device to transmit configuration data to the central station.

10 31. The system of claim 1 wherein the wide area communications network is selected from the group of a wireless cellular control channel network, a plain old telephone service, a satellite data network, a cellular digital packet data network, a two way paging network, and a digital cellular service network.

15 32. The system of claim 1 wherein the central database is a relational database that allows information to be quickly accessed by individual devices or by groups of devices.

33. A system comprising:

20 a remote telemetry device to monitor at least one sensor input, the telemetry device programmable to communicate with a central station upon at least one of an alarm condition and a regular time interval, the alarm condition comprising any measurement of the sensor input that is outside of a user defined measurement range, the telemetry device incorporating a transmitter and a processor that includes non-volatile memory and programming code to control operation of the telemetry device;

25 a central station, responsive to the remote telemetry device, the central station including a central station computer server and software embedded therein to provide connection with a wide area network communications module, a database hosting module hosting a central database, and a notification module to issue alarm notification messages, the wide area network communications module

to manage message traffic between a wide area communications network and the central database;

a central database to store and organize information communicated by the telemetry device;

5 a computer network user interface that provides a user with remote access to the information stored at the central database; and

a power source, the power source responsive to an alternating current transmission, the power source connected to the remote telemetry device.

10 34. The system of claim 33, wherein the power source receives alternating current electrical energy and provides a direct current power source to the remote telemetry device.

35. The system of claim 33, wherein the power source includes a voltage regulator.

15 36. The system of claim 33, wherein a user can modify configuration parameters of the telemetry device remotely through the computer network user interface via an internet connection.

37. A method of remotely monitoring a telemetry device using a computer network, the method comprising:

20 monitoring at least one sensor input using a remote telemetry device;

using the remote telemetry device to communicate measurement data to a central station upon at least one of an alarm condition and a regular time interval, the alarm condition comprising any measurement of the sensor input that is outside of a user defined measurement range,

25 storing the measurement data communicated by the telemetry device to a central database;

providing a user with remote access to the measured data stored at the central database using a computer network user interface connected to the internet.; and

30 receiving an alarm notification message via the computer network user interface, the alarm notification message issued by a notification module coupled

to the central station, the alarm notification message issued in response to an alarm condition.